

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows. Please cancel claims 2, 4-8, 14-16 and 19-20 without prejudice or disclaimer. Please add new claims 21-22.

1. (Currently Amended) A frequency offset detection processing system comprising:
 - a TCXO (Temperature Compensated Crystal Oscillator, Temperature Compensated X'tal Oscillator) which generates a reference frequency;
 - a demodulation unit which demodulates a reception signal;
 - a frequency offset detection unit which detects a frequency offset from a phase moving amount between symbols of adjacent pilot signals; and
 - an AFC (Auto Frequency Control) control unit, characterized in that said AFC control unit comprises:
 - a majority determination unit which determines whether each of phase moving amount detection values by a plurality of frequency offsets, which are detected for a predetermined time and read out from said frequency offset detection unit, is a positive value or a negative value, and totalizes to determine which of the positive values and the negative values are larger in number;
 - a detection value conversion unit which converts the phase moving amount detection values read out from said frequency offset detection unit in accordance with a majority determination result from said majority determination unit,
- wherein said detection value conversion unit converts negative phase moving amount detection values to $+360^\circ$ + the negative phase moving

amount detection values when it is determined that a number of negative
detection values is smaller than the majority determination result; and

wherein said detection value conversion unit converts the positive
phase moving amount detection values to -360° + the positive phase moving
amount detection values when it is determined that a number of positive
detection values is smaller than the majority determination result;

an averaging processing unit which executes processing for adding the phase
moving amount detection values read out from said frequency offset detection unit
and converted by said detection value conversion unit and dividing a sum by the
number of added values;

a correction value calculation unit which calculates a frequency offset from the
phase moving amounts after averaging processing by said averaging processing unit;
and

a TCXO control unit which corrects TCXO control on the basis of the
frequency offset calculated by said correction value calculation unit.

2. (Canceled.)

3. (Currently Amended) A frequency offset detection processing method
characterized by comprising:

a Temperature Compensated Crystal Oscillator (TCXO) generating a reference
frequency;

demodulating a reception signal;

frequency offset detection of detecting a frequency offset from a phase moving amount between symbols of adjacent pilot signals;

majority determination of determining whether each of phase moving amount detection values by a plurality of frequency offsets, which are detected for a predetermined time and read out in the frequency offset detection, is a positive value or a negative value, and totalizing to determine which of the positive values and the negative values are larger in number;

detection value conversion of converting negative phase moving amount detection values to $+360^\circ$ + the negative phase moving amount detection values when it is determined that a number of negative detection values is smaller than the majority determination result; ~~in accordance with a majority determination result;~~

detection value conversion of converting positive phase moving amount detection values to -360° + the positive phase moving amount detection values when it is determined that a number of positive detection values is smaller than the majority determination result;

averaging processing of executing processing for adding the phase moving amount detection values by the plurality of frequency offsets after conversion and dividing a sum by the number of added values;

correction value calculation of calculating a frequency offset from the phase moving amounts after averaging processing; and

TCXO control of correcting TCXO control on the basis of the calculated frequency offset.

Claims 4-8. (Canceled.)

9. (Previously Presented) The system according to claim 1, wherein said majority determination unit determines the shift direction of a frequency offset by majority determination before averaging processing and making the signs of detection values coincide from the majority determination result.

10. (Previously Presented) The system according to claim 1, wherein said majority determination unit determines the shift direction of the frequency offset.

11. (Previously Presented) The system according to claim 1, wherein detection values with a sign, which are determined as smaller in number by the majority determination unit, are regarded as values whose shift direction of the frequency offset is erroneously determined.

12. (Previously Presented) The system according to claim 1, wherein when it is determined as a result of majority determination that a number of negative detection values is smaller, the negative detection values are converted.

13. (Previously Presented) The system according to claim 1, wherein the signs of all detection values are made to coincide by determining the shift direction before the averaging processing.

Claims 14-16. (Canceled.)

17. (Currently Amended) An AFC (Auto Frequency Control) unit comprising:
a majority determination unit which determines whether each of phase moving amount detection values by a plurality of frequency offsets, which are detected for a predetermined time and read out from said frequency offset detection unit, is a positive value or a negative value, and totalizes to determine which of the positive values and the negative values are larger in number;

a detection value conversion unit which converts the phase moving amount detection values read out from said frequency offset detection unit in accordance with a majority determination result from said majority determination unit,

wherein said detection value conversion unit converts negative phase moving amount detection values to $+360^\circ$ + the negative phase moving amount detection values when it is determined that a number of negative detection values is smaller than the majority determination result; and

wherein said detection value conversion unit converts the positive phase moving amount detection values to -360° + the positive phase moving amount detection values when it is determined that a number of positive detection values is smaller than the majority determination result;

an averaging processing unit which executes processing for adding the phase moving amount detection values read out from said frequency offset detection unit and converted by said detection value conversion unit and dividing a sum by the number of added values;

a correction value calculation unit which calculates a frequency offset from the phase moving amounts after averaging processing by said averaging processing unit; and

a Temperature Compensated Crystal Oscillator (TCXO) control unit which corrects a TCXO control on the basis of the frequency offset calculated by said correction value calculation unit.

18. (Previously Presented) The AFC unit according to claim 17, wherein said majority determination unit determines the shift direction of a frequency offset by majority determination before averaging processing and making the signs of detection values coincide from the majority determination result.

Claims 19-20. (Canceled.)

21. (New) A frequency offset detection processing system comprising:
a TCXO (Temperature Compensated Crystal Oscillator, Temperature Compensated X'tal Oscillator) which generates a reference frequency;
a demodulation unit which demodulates a reception signal;
a frequency offset detection unit which detects a frequency offset from a phase moving amount between symbols of adjacent pilot signals; and
an AFC (Auto Frequency Control) control unit, characterized in that said AFC control unit comprises:

a majority determination unit which determines whether each of phase moving amount detection values by a plurality of frequency offsets, which are detected for a predetermined time and read out from said frequency offset detection unit, is a positive value or a negative value, and totalizes to determine which of the positive

values and the negative values are larger in number;

a detection value conversion unit which converts the phase moving amount detection values read out from said frequency offset detection unit in accordance with a majority determination result from said majority determination unit;

an averaging processing unit which executes processing for adding the phase moving amount detection values read out from said frequency offset detection unit and converted by said detection value conversion unit and dividing a sum by the number of added values;

a correction value calculation unit which calculates a frequency offset from the phase moving amounts after averaging processing by said averaging processing unit; and

a TCXO control unit which corrects TCXO control on the basis of the frequency offset calculated by said correction value calculation unit,

wherein a distribution of the phase shift detection values after conversion in accordance with a majority determination result from said majority determination result in a Gaussian distribution, and

wherein a central value of the distribution and an average value of the distribution have approximately the same value.

22. (New) An AFC (Auto Frequency Control) unit comprising:

a majority determination unit which determines whether each of phase moving amount detection values by a plurality of frequency offsets, which are detected for a predetermined time and read out from said frequency offset detection unit, is a positive value

or a negative value, and totalizes to determine which of the positive values and the negative values are larger in number;

a detection value conversion unit which converts the phase moving amount detection values read out from said frequency offset detection unit in accordance with a majority determination result from said majority determination unit;

an averaging processing unit which executes processing for adding the phase moving amount detection values read out from said frequency offset detection unit and converted by said detection value conversion unit and dividing a sum by the number of added values;

a correction value calculation unit which calculates a frequency offset from the phase moving amounts after averaging processing by said averaging processing unit; and

a Temperature Compensated Crystal Oscillator (TCXO) control unit which corrects a TCXO control on the basis of the frequency offset calculated by said correction value calculation unit,

wherein a distribution of the phase shift detection values after conversion in accordance with a majority determination result from said majority determination result in a Gaussian distribution, and

wherein a central value (actual phase shift) of the distribution and an average value (detection value after processing) of the distribution have approximately the same value.